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ABSTRACT

This study is part of a larger project on teacher research and professional development in the Teacher Enhancement Program (TEP), a master's degree mid-career collaborative program for inservice teachers. Research was initially planned and implemented as a new course which required teachers to do a Systematic Inquiry Project (SIP) in their classrooms. A systematic record of the 25 participants' (experienced teachers: 23 female, 2 male) small-group and whole-group dialogues, work-in-progress reports of inquiry projects, final presentations, self-reflective evaluations, and staff meetings provide the empirical data. The primary focus of analysis is on the discourse of participants as they articulate and reflect on their classroom inquiry experience. Analysis of these discourses led to the conclusion that: (1) teachers celebrated peer collaboration; (2) teachers' Systematic Inquiry Group (SIG) collaboration experience expanded into the classroom; (3) collective zones of proximal development facilitated risk-taking in the classroom; (4) participants discovered new dimensions of their teaching and of their students through activities such as watching themselves teach on video or transcribing a whole-group interview with students; and (5) initially reluctant teachers became engaged in the systematic inquiry process. (Contains 16 references.) (Author/LH)

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TEACHER-RESEARCHERS IN THE "ZONE OF PROXIMAL DEVELOPMENT": INSIGHTS FOR TEACHER EDUCATION

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Paper presented at the International Conference: "A CULTURAL-HISTORICAL APPROACH TO THE STUDY OF EDUCATION: Centenary of LEV S. VYGOTSKY 1896-1996, Moscow, October 21-24, 1996

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ABSTRACT

Teachers' engagement in their own classroom systematic inquiry, while sharing their experiences with a peer support group, provides an excellent opportunity for them to participate actively in the co-construction of pedagogical knowledge starting from their own practice and consequently enhancing it. The participants in this study were 25 teachers (23 women, two men), who attended the Teacher Enhancement Program (TEP), an innovative mid-career program based on the principles of reflective practice, social construction of knowledge, and multicultural perspectives of education. Small-group and whole-group dialogues (note-taking), participants' work-in-progress reports of their inquiry projects (oral and written), final presentations (tape recording), self-reflective evaluations (written) and staff meetings (tape recording), constitute the empirical data of this study. The primary focus of analysis is on the discourse of participants as they articulate and reflect on their experience of doing classroom inquiry. The context of interpretation is constituted by the program in which this experience was built in, the cultural-historical context of education in general and teacher education in particular. As teachers engaged in studying their own practice with the support of their peers, they began discovering new dimensions of their teaching and of their classrooms (e.g., students' voices and through them their own voices, collaboration), they became more knowledgeable and articulate concerning their perspectives on education, and more open and democratic by sharing responsibilities and power with students in their classrooms, and foremost they develop self-confidence as generators of pedagogical knowledge. This represents undoubtedly a turning point in teacher education. First of all it constitutes an alternative model to that of being primarily 'practitioners' or 'receivers of knowledge'. Secondly, it enhances teachers' growth as a community, overcoming thus the conventional models of learning and professional development as predominantly individualized processes. This study gives insights for the education of tomorrow's teachers as lifelong learners, able to respond with contextualized understanding to cultural diversity and to different and more complex characteristics of students and society.

BACKGROUND

This study is part of a larger project on teacher research and professional development in the Teacher Enhancement Program (TEP), a master's degree mid-career collaborative program (University of New Mexico and the public schools of the area) for in-service teachers. Teacher research was initially planned and implemented as a new course integrated into the TEP curriculum, in which participants were required to do a Systematic Inquiry Project (SIP) in their classrooms. I was in charge of its orientation and development in collaboration with

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the staff of the program. A systematic record of participants' engagement in most of the activities planned and implemented in the course of this experience gave us the empirical information to turn this teaching experience of a curriculum innovation into a research project. In this paper there is reported the study of the collective ZPDs built into the program, especially the Systematic Inquiry Group (SIG) ongoing support to teachers while doing their inquiry project; as well as the subsequent transformation of their teaching perspectives and classroom practices linked to their experience of peer collaboration and to the SIPs.

CREATING ZONES OF PROXIMAL DEVELOPMENT FOR TEACHER-RESEARCHERS

The notion of *zone of proximal development* (*zpd*) is central to the cultural-historical theory of human psyche developed by L.S. Vygotsky. This theory is rooted in the tradition of dialectical materialism; hence human activity, as inherently social, is the origin and nature of the human psyche including consciousness, personality, and the higher mental functions. Thus, Vygotsky's thesis on the cultural-historical development of the psychological processes is considered a revolutionary one (Montealegre, 1992). Notice that we are talking here about psyche and psychological processes and not only about the higher mental functions. Leontiev (1991), talking about culture and cognition, remarks on this relationship: "Cognitive processes are only one part of the interiorization process: they form my orienting bases for my acting in the world". Lee (1985) points out how Vygotsky's followers have appropriated and interiorized his theory emphasizing only part of it: "Soviet psychologists have, of course, emphasized the Marxist aspects of his work, and see him as the founder of a modern theory of activity. American researchers have focused on his work on language and thought and neglected his Marxist and functionalist side" (p.66). This restriction to only one part of his theory distorts the real and complete significance of Vygotsky's work, according to Lee.

For this same author, "Vygotsky's great contribution to the formulation of a Marxist psychology was his proposal that it is the semiotic mediation of tool use that creates the truly human forms of labor activity" (Lee, 1985, p.74). Unlike natural phenomena, the psychological phenomena result in new forms of human activities by using and transforming cultural tools including the language. From this perspective the individual psychological functions are developed as she or he engages in human activity which may be semiotic in itself or mediated semiotically, as for example a teaching-learning situation.

At this point it is important to distinguish between collective activity and individual activity. Davidov (1995) analyzes these concepts within Vygotsky's theory: "One pole of his cultural and historical theory is represented by the concept of the historically developing generic, that is, the collective activity of people (and from this it is only one step to the concept of the collective subject and of collective consciousness). A second pole is represented by individual activity, by the concept of the individual subject and individual consciousness" (p.15). Thus, the upbringing and teaching are processes by which an individual appropriates and assimilates the historical and cultural tools as this individual engages in an activity with other people. These ideas are the bases of Vygotsky's notion of *the zone of proximal development* and therefore of collaboration between adults and children and among children (Davidov, 1995).

Vygotsky (1978) defines *zpd* as "the distance between the actual development as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p.76). Wertsch (1984) argues that in order to understand the *zpd* notion it is necessary to make clear these concepts: 1) Situation definition; 2) Intersubjectivity, and 3) Semantic mediation. With respect to the *situation definition*, he considers that child and adult have different definitions of

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the situation. The redefinition of the situation by the child "giving up an existing situation definition in favor of a qualitatively new one is characteristic of the major changes that a child undergoes in the zone of proximal development" (p.11). Another notion is the *intersubjectivity* which implies that "adult and child can negotiate an intersubjective situation definition that differs from both of their ways of understanding the situation on the intrapsychological plane" (p.13). Finally, there is the *semiotic mediation*, by which the intersubjectivity of understanding the situation is negotiated. Language may play a crucial role in this negotiation.

Moll and Greenberg (1990) and Moll and Whitmore (1993) develop a broader and more dynamic notion of *zpd* than that usually alluded to in the empirical studies framed within the Vygotskian theory. Moll and Whitmore study the dynamics of the interaction between students and their teacher and among the students themselves in several collaborative situations where the roles tutor-tutoree were rotated depending on the specific activity. They also studied the ways in which this classroom used social and cultural resources, co-constructed meaning, shared control and developed mutual trust. The authors refer to this as a *collective zpd,* which due to its encompassing character seems more useful for studying situations which are complex by nature and very difficult to analyze with the one-to-one approach. In the present study the situations are also very complex, therefore a *collective zpd* may help us to frame and understand teachers' perceptions and feelings concerning their experience in doing systematic inquiry in their classrooms.

On the other hand, Smagorinsky (1995) analyzes the research activity as a *zpd* situation: "From a neo-Vygotskian perspective, data are social constructs developed through the relationship of researcher, research participants, research context (including its historical antecedents), and the means of data collection" (p. 192). Thus the researcher is a mediator, methods are means and the participants' potential is developed as they engage in the research activity. In order to better understand research activity as a *zpd,* he compares research with teaching: "Research results are only valid when the learner is consonant with and can appropriate the mediational means of the research as useful cultural tools, and when the research takes into account the learner's appropriation of the research tools when finding evidence for a claim". In brief, research for Smagorinsky is inherently mediational, which implies that data and knowledge are socially constructed. This same epistemological perspective is also the one taken by most of the followers of the teacher research approach.

Integration of teacher research, here called a Systematic Inquiry Project (SIP), as a core component of TEP is a further innovation in what is already an innovation in teacher education. Teacher research is considered an epistemological movement with direct implications for professional development (Anderson, Herr and Nihlen, 1994; Cochran-Smith and Lytle, 1993; Wells, 1994). As teachers engage in classroom inquiry they move from epistemological dependence as 'practitioners' or 'doers', predominantly concerned with 'how to' kinds of procedural knowledge, to become more active participants in the production of pedagogical knowledge, while building communities of inquiry and improving their teaching. In brief, teachers' engagement in SIP in collaboration with other colleagues may signify an *epistemological liberation:* from being considered only consumers to becoming producers, from being only practitioners to becoming also theorists.

Teacher Research or *Classroom Inquiry* may be considered as a movement in education aimed at legitimating teachers' ways of knowing; most of all, teachers' active participation in *generating* or *constructing* pedagogical knowledge rather than being only *receivers* of it. In other words, teacher research is a process of democratization of educational knowledge in terms of what counts as legitimate knowledge, who produces it and for what, who applies it, etc. Cochran-Smith and Lytle (1994) establish the contrast between the conventional way of doing research on teaching and that framed in teacher research:

"We argue that it is possible to imagine a different knowledge base for teaching, one that is not drawn exclusively from university-based research but is also drawn from research conducted by teachers, one that is not designed so that teachers function simply as objects of study and recipients of knowledge but also function as architects and generators of knowledge" (p.2).

RESEARCH APPROACH AND METHODS

This study is framed within a cultural-historical approach to the understanding of teachers' socio-cognitive processes while they are becoming teacher-researchers. For Vygotsky (1989) "The question of method is the beginning and the basis, the alpha and the omega of the history of the cultural development of the child" (p.100). Hence, method and theory are interdependent for him. That implies that in studying teachers' collaborative learning to become inquirers of their own teaching, we need to focus on the developmental processes of such becoming through the perceptions and articulation of their own development. However, in the present study the genetic/historical analysis is not carried out at the micro level but as a holistic analysis of teachers' discourse, which may correspond to what Cole (1995) calls the "mesogenetic" level.

As indicated at the beginning of this paper, this study originated from a teaching experience of curricular innovation that turned into a research project. The integration of teacher research was considered exploratory; it was based on an inductive method by which teachers' understanding and conceptualization of the research process would grow from their own experience in doing the Systematic Inquiry Project (SIP) in their classrooms. Briefly, the course in classroom inquiry consisted of: - *Purpose*: To engage teachers in an intentional and systematic study of their own educational practice while sharing and constructing pedagogical knowledge as well as building community with other teachers. - *Method*: Inductive, based on the practice-derived principle that teachers learn, understand and engage in classroom inquiry starting from their own practice of it, and proceeding to the conceptualization of methods, principles and approaches of teacher-research. This in turn may shed light on their practice; and this cycle continues as a spiral process. - *Components*: a) Systematic Inquiry Groups (SIGs): small groups for sharing, supporting and challenging each other; b) Peer Support Teachers (PSTs) to assist teachers with their projects; c) Whole-group dialogues to present basic concepts and methods of research, and to share experiences while creating common knowledge and language; d) Readings on teacher-research methods, concepts and approaches as well as examples of teacher research done and published by other teachers.

Participants in TEP were 25 experienced teachers (23 female and two male). Ethnically there were 16 'Anglo' and 9 Hispanic, who are teaching in public schools from elementary through high school, mainstream and special education.

As the semester went by, we as staff tried to keep track of the teachers' SIPs, as well as their own perceptions and articulations of them, by means of note-taking of the whole-group conversations, as well as of the Systematic Inquiry Group (SIG) meetings as I rotated through the small groups during the semester. We also tape recorded their SIP presentations and their final presentation of which the SIP was a component. Other sources of information were: teachers' SIP work-in-progress reports, self-reflective evaluation of their development while doing the SIP, and their program evaluations and staff meeting notes.

The analysis is based mainly on teachers' discourse regarding their engagement and experience in doing their classroom inquiry. In addition, the notes and the context information, both the

situation and the institutional context, complemented these data and helped me in their interpretation.

DATA ANALYSIS: STRUGGLES, CELEBRATIONS, DISCOVERIES AND CHANGES IN EDUCATIONAL PERSPECTIVES

TEP, as a mid-career program, is based on the principles of reflective practice, community building and the social construction of educational knowledge. In accordance with these principles, the course on teacher research devised for its participants many distinct, yet related *'collective' zpd*, such as: Systematic Inquiry Groups, PST-participant, staff-participants, temporary small-groups for discussing readings, presentations and other issues, as well as the planning meetings of the staff as a team.

In this paper I am going to focus on the discourse of participants as they articulate and reflect on their experience of doing classroom inquiry. The holistic analysis of these discourses and their respective contexts led us to the following results: 1) Celebration of peer collaboration, 2) Transference of their own experience of collaboration in the SIGs into their classrooms, 3) Facilitation of risk-taking in trying new things in their classrooms, 4) Insightful situations: discovering new dimensions of their teaching and of their students, and 5) From skepticism and fearfulness to an engagement in Systematic Inquiry as an ongoing process. In the following I shall describe each of these major results.

1. Celebrating peer collaboration: This group of teachers celebrated collaboration. For most of them it was the first time that they had an opportunity to collaborate with peers on a systematic basis. Their commentaries may be grouped into five dimensions: *Affective support, guidance and help, sharing and learning, different perspectives* and *challenge*. These are characterized as:

Affective support: Participants refer to their SIGs primarily in terms of a 'safe' and non-judgemental place where their ideas and actions were validated and encouraged.

Guidance and help: Teachers recognized the guidance received from their SIG for their suggestions and help in clarification of their questions, methods and data interpretation, and from their PSTs and staff for assisting them in studying their own teaching.

Sharing and learning: Mutual sharing and learning ideas, methods and strategies were important accomplishments for this group of teachers as they worked in their SIGs.

Different perspectives: Only a few participants, those with a high level of articulation of their process of development, recognized the importance of peer collaboration in terms of offering different perspectives.

Challenge: To be challenged, pushed or questioned beyond the comfort zone by their peers or by the staff was appreciated and valued. Conflict, in terms of disagreement on a given issue or situation, was very rare. In general terms, this group of teachers avoided discussing controversial issues or expressing disagreement on a given matter. For them challenge has a positive connotation and conflict/disagreement a negative one.

2. Expanding teachers' own experience of collaboration in the SIGs into their classrooms: Working groups, cooperative learning, dyads are strategies very much used in these teachers' classrooms. Their experience in collaboration with their SIG peers and their PSTs motivated

them to build partnerships with their students in the roles of co-teachers or co-researchers. Sharing power with and inviting participation from students began to be implemented by several teachers and considered seriously by others. Joan clearly articulates this connection:

> "If this is what I experience as an adult learner, what connection can be made with my children in my classroom? They have to be able to go through the same steps, they need to be able to work with people. So it really impacted the way I taught this year" (Joan, final presentation).

3. Facilitation of risk-taking in trying new things in the classroom: TEP participants are very willing to change and introduce innovations in their classrooms. However, many of these changes went beyond their zone of comfort; that is, they were risky for them as teachers. Roberta's comment illustrated that kind of struggle: "My fear of staying the same is greater than the fear of showing what's going on in my classroom". Some participants either were already trying things that were risky for others, or it was easier for them to take the risk and try new things in their classrooms. The fact of being in a *'collective' zpd* facilitated other teachers to take similar actions; and most of all, to share and enjoy their experiences. One of the major changes and challenges they tried was an *openness* to students' input and participation in decision-making concerning learning activities, problem solving, environment arrangement and curriculum organization. Accordingly, students were also given more choices among different tasks and learning activities and were asked about their feelings related to them. The following are short excerpts from participants that illustrate some of these situations:

Taking the risk of changing teaching style:

> "The SIG helped me to realize that's it's not that awful to change your teaching styles" (Patricia, reflection on SIP).

Risky openness:

> "I felt risky to let my students lead the way to show me how they might learn best, but the results were better than I imagined" (Joan, reflection on the SIP).

Opening to participation of students in problem solving:

> "I have learned from this project how easy and eager students are to give me input into solving problems that arise in class" (Laine, reflection on the SIP).

Asking students for their feeling about the class:

> "This is something very new for me, to ask students what they feel about the class. That would never have crossed my mind, to do something like this" (Rick, presentation of the SIP).

Trusting students' choices on learning:

> "It's enlightening to know that students can and will make appropriate choices regarding their learning if we give them the chance to do so" (Joan, SIP report).

These changes and many others that this group of teachers introduced in their classes were, to a great extent, facilitated by their active participation in the different collective *zpd*s, primarily the SIG. For many of the participants these changes and the subsequent insights led them to consider and articulate a new philosophy of teaching, more democratic and open and including feelings, choices, participation and collaboration.

Openness and growth for teacher and students

"Being involved in this project has opened my eyes and mind about teaching in general... I think giving students the responsibility and choices for their own learning has a positive growth for both my students and myself" (Laura, reflection on the SIP).

Paradigm shift

"The discovery of the power of induction was a big AHA! for me since I was using a different paradigm. The paradigm of problem solving. I was so used to it." (Lorraine, SIP presentation).

Being able to articulate, or put into words their experiences was highly facilitated in their conversations in the SIG and the other *'collective' zpd*s. Very often teachers referred to articulation as going hand in hand with risk taking and also with collaboration.

4. Insightful situations: Discovering new dimensions of their teaching and students: Three participants considered the SIP the most beneficial project, although at times they felt a little uncomfortable doing it. For these three participants the whole inquiry project was a revelation and revision of their own perspectives on education. For the vast majority of the participants the whole program, including the SIP, was a really a turning point in their careers. At any rate they coincide in indicating some insightful situations or moments of revelation when they discovered new dimensions of their teaching and/or of their students, which they never had realized before. Some of these situations were: a) playing back video tapes of herself teaching in her own classrooms; b) transcribing conversations with her students; c) asking students about their feelings with respect to different class activities, and d) asking students for their own definitions of things which most of the time are only defined by teachers. The following are some excerpts as a way of illustrating each of these situations:

Playing back a video to see herself while teaching

"The video and audio tapes have given me some great insight into my instructional techniques. I thought I was prepared to watch myself without any big surprise. Wrong! I see some management issues that horrify me... I think that videotaping myself on a regular basis will become essential, to be sure I am communicating the way I intend to" (Claire, SIP report).

Watching the video of her teaching with a staff member

"And it only took about five minutes of video of my reading class and a pair of eyes not attached to me to discover that there was something else going on. Paul [member of the staff] offered some interesting observations. After a few light remarks about how engaged the students were in the activities, he added: 'It looks as though your children like you a whole lot more than you like them'... Sometimes we need to get struck by lightning" (Jolie, SIP report).

Transcribing whole-group conversation: teacher-students

"I transcribed one of the tapes and brought it to my group and Delia noticed that perhaps my questioning was actually leading the kids to what I wanted, which was not to give a letter grade... So I looked at the conversations again and I realized that what students were telling me was the value of the letter grading. It's a reward for them" (Lorraine, SIP presentation).

Transcribing group interview: teacher-students

"While transcribing my interview with my fifth period class, I found that I was not responding to the statements being made by my students. I'm hoping that in the future I

will be more responsive to students even when they respond with something that seems to lead us away from where I want to take the discussion" (Laine, reflection on SIP).

Revisiting criteria for defining performance

"Individual interviews were conducted regarding attitudes and experiences with reading. I felt that the most important question on the interview was 'Do you think you're a good reader?'... Every student responded that he/she is a good reader - even the students who read significantly below grade level: Peter 'went through a whole Goosebumps book without trouble' so he thinks that makes him a good reader... Steve thinks he is a good reader because 'I always read to a girl in Mr. Mackara's class'. I think confidence in one's ability is a strong indicator of reading success" (Joan, SIP report).

Discovering new dimensions:

"Research to me has given me a new meaning. The word is 'discovery' of myself and my students" (Patricia, SIP report).

5. <u>From skepticism and fearfulness to their engagement in systematic inquiry as an ongoing process:</u> This group of teachers had serious doubts, fears and apprehensions concerning engaging in research. They felt intimidated when we (staff) began to talk about asking them to do systematic inquiry in their classrooms. Joan was very anxious at the beginning of the semester:

"The research project was not one that I approached with enthusiasm. Having never conducted formal research, the prospect of designing and conducting a project of this scope and presenting the results was overwhelming" (Reflection on the SIP).

In like manner Patricia was very fearful at the beginning:

"When I first heard the word research I was terrifed... I had always related research to a scientific project. I had never been a researcher, so I had my doubts. I'm glad now that I had doubts, because without them I wouldn't have learned much" (Reflection on the SIP).

As teachers initiated their projects by reading other teachers' persuasive writing about their own classroom inquiries, they began to understand that the project they had just engaged in was different from their previous idea of research. Once they met together in small groups to talk about what classroom inquiry meant for them, a constructive appropriation began. Some of their remarks showed their preconceptions of research as a very alien and rigid activity: One group remarked: "Research is not a scary thing - we <u>can</u> do it!! <u>We</u> can do it!... We don't have to know everything". Another group wrote: "Research does not necessarily mean library work. There is so much diversity in the process that it allows for freedom and creativity".

From skepticism and fearfulness this group of teachers moved relatively quickly to a feeling of confidence in doing teacher research, as one of the groups said two weeks after beginning the project: "We <u>can</u> do it!!" By that time some of the participants started referring to the SIP as "MY inquiry project". Participants were also challenged to link teaching and research as an ongoing process in their classrooms. Although the time was too short to conduct a complete study, there were several who started to see the deep connection between teaching and research. In other words, they saw their teaching as an inquiry process and/or to perceive the latter as an ongoing process. Patricia realized that in order to understand what it meant to do classroom inquiry:

> "I felt that I needed to make a connection to how research can be interwoven with my teaching... I cannot stand around and instruct without becoming involved in my students' learning. I have to become part of the puzzle that will be completed together with my students. I know that I must continue to examine myself and my students for many years to come."

Lorraine in her SIP presentation used the metaphor 'Moebius strip' as an analogy of the classroom inquiry as an ongoing process: "The Moebius strip represents what we were doing because it seems to be edgeless, never ends." Similarly, Brandi considers her classroom a great resource of information: "I am far from finished with this project. The results, as of today, show that an immeasurable amount of information is slipping by me unseen daily in my classroom... My initial question has led to additional questions". Teachers were also talking of doing classroom inquiry in other areas different from that on which they focused in their project, as well as sharing their results and knowledge with other colleagues.

About the SIPs:
Areas of inquiry: Out of 25 projects, 8 were on literacy in first and second grade; four on classroom management in elementary; two on teaching math in elementary; two on cooperative learning (one in high school math and one in physical education); two on evaluation, two on environment organization, and one each on planning in physical education, use of a journal homework in English in middle school, sciences in middle school, teaching philosophy in sports, and cognitive styles.

Methods used for collecting data:
Survey/individual interview
Classroom meetings
Group interviews
Journals by participants
Journals by students
Tape recording/videos
Anecdotal records
Students' work
Academic records

Descriptive vs. action research projects:
Out of 25, 20 included some kind of action or change introduced in order to solve a problem and/or see the effects of such changes. These changes were mostly about the curriculum and teaching strategies; some were about classroom management. The other 5 did not introduce any action. Actually, four of them were completely descriptive of what was going on in the classrom with respect to the topic they were studying. One teacher did only a bibliographic documentation and practically avoided looking at her classroom.

DISCUSSION

Teachers' engagement in systematic inquiry in their classrooms may be an open-ended learning experience, full of struggles, discoveries (including self-discovery) and changes of teaching perspective for their own benefit and that of their students. Vygotsky's notion of *the zone of proximal development* in the sense appropriated by Moll and Whitmore (1993) as a *'collective' zpd* is very useful for the interpretation of the results of this study. These results were as follows: 1) Celebration of peer collaboration; 2) Transference of their own experience of collaboration in the SIGs into their classrooms; 3) Facilitation of risk taking in trying new

things in their classrooms; 4) Insightful situations: discovering new dimensions of their teaching and of their students; and 5) From skepticism and fearfulness to an engagement in systematic inquiry as an ongoing process.

Certainly these results do not represent what happened for each and every one of the participants. They were, however, revealed as salient trends of the teachers' transformative learning in doing classroom inquiry. In a very complex situation like this, one teacher's 'participatory appropriation', using Rogoff's (1995) category, may be different from another's both qualitatively and quantitatively. The interdependence created in the *'collective' zpd* resulted in a relatively greater degree of development for the participants. Those who most benefited from their experience and peer collaboration in doing their SIPs were those in the *'collective' zpd*'s in which the peers supported, pushed and challenged one another directly.

The skepticism and fearfulness these teachers had at the beginning of the semester may reflect at least two influences: the overemphasis in teacher education of the practical aspects of teaching at the expense of their exposure to educational theories growing from reflection and empirical research both qualitative and quantitative, and the fact that educational research is not always relevant to teachers' interests. In addition, the social gap between researchers (University professors) and practitioners (public and private school teachers) makes research an alien subject to teachers. Thus, teachers' pragmatic ways of thinking (Torres, 1996) and their skepticism toward research formed the basis for us (the staff) to take an *inductive* approach to assisting teachers with their SIPs. As indicated above, this approach involves some kind of inquiry practice as the starting point and referent for understanding more abstract concepts, theories and methods of research. Nevertheless this *inductive* approach is not a linear process from practice to theory, but a *spiral process* for getting deeper understanding into their inquiry process. Thus, whenever the cycle is repeated (practice, reflection, conceptualization, theorization, new practice and so on), it will take place on a higher level of understanding.

This *inductive* approach is completely compatible with the cultural-historical approach as conceived by Vygotsky: that human activity (including the practical/labor) is the origin of higher mental processes as well as an important determinant of their nature. So this is another important reason for using this approach. A third reason is time. After only eight weeks from the start, all teachers but one were fully engaged in their projects: talking about their discoveries, achievements, benefits and future projects. Their skepticism and fears were already far behind. Although these teachers did not have time to complete their SIP (only 10 weeks of systematic meetings in the SIGs and with their PSTs), many of them did make great advances into the analysis of the data collected. However, it ended with a mismatch between the practice and the theory of teacher research: participants reached far ahead with their inquiry practice while the discussion of concepts, theories, criteria and paradigms of teacher research lagged behind.

Reflecting on the short time that it took them to change from skepticism to full enthusiastic engagement, it seems that the action research approach most of them adopted may have contributed to their conversion as they began to see positive changes in their classrooms. However, in several cases they did not study the situation carefully prior to taking any action. These teachers were driven too much to do something, which meant for them to introduce some sort of change in the curriculum activities, classroom environment or management, teaching strategies, etc. Several teachers understood classroom inquiry as a problem solving kind of approach; and in some cases the solution to the problem was somewhat premature.

Given the fact that this study is framed within a teaching practice, not all the critical components may be examined with the desired depth because it is not always possible to record information for all of them. In this case there is very little information to study the interaction between the PST and the participant or participants. In the staff meetings, PSTs

talked very little about this relationship. Feasibility becomes an important issue in doing research on our own practice.

It is important to acknowledge here that the positive insights from this experience of engaging teachers in classroom inquiry were to a great extent possible because of the TEP philosophy and method of teaching.

INSIGHTS FOR TEACHER EDUCATION

Teachers' engagement in classroom inquiry, as a central component of a master's degree mid-career program like TEP, has been an insightful experience for both participants and staff of the program. Professional and personal growth was evident for the majority of the participants in this experience. This growth may be perceived as:

1. Awakening to things that were taking place in their classrooms and of which they had been unaware, as for example considering children/students as sources of information for curriculum planning, implementation and evaluation. By asking children/students for their perceptions, feelings, reactions and understandings, teachers began to appreciate new dimensions of children's voices while awakening to other dimensions of their own teaching.

2. Opening the door to more democratic classrooms. As teachers awoke to students' voices they began to share responsibilities with them as co-teachers, as co-researchers and as partners in decision making and problem solving in the classroom. They started asking themselves questions about authority, power, whose educational goals, whose definitions of evaluation criteria. As they raised these issues in the SIGs and in the whole-group conversations, other teachers began at least to think about them.

3. Discovery of herself or himself as a learner from her/his teaching in a systematic and intentional way. This discovery led them to a better understanding of the intimate connection between teaching and classroom inquiry. Considering herself/himself a permanent learner is in itself an attitude and/or habit of being inquirers of their own practice of teaching, an attitude or habit that leads them to deeper understanding and articulation, which by and large results in an improvement in teaching and in becoming better professionals of education.

4. Building communities of inquirers: Peer collaboration was celebrated. This was a central component of TEP curriculum and evaluation, so the SIGs was not the only collaborative activity, but it was the most systematical one that semester. The *'collective' zpd* in the SIGs enhanced the participants' awakening of their collaborative spirit, and displayed the benefits of peer collaboration; and most of all they translated those insights into their classroom practices.

As a final remark, the study of the teacher-research movement, which may be a liberating movement, and specifically the processes through which teachers become systematic inquirers of their classrooms and schools deserves to be studied, supported and developed. In becoming teacher-researchers, and most of all a community of inquirers, they may nourish one another, share their concerns, and make their voices heard, constituting in this manner a pole of resistance against the latest conservative tendencies of teacher education and education in general, which are focusing primarily on standards and accountability, the antithesis of a liberating education.

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